

# **ELECTROCUTION AS A MEANS OF CONTROLLING DRYWOOD TERMITES IN STRUCTURES: EFFICACY UNDER FIELD CONDITIONS**

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For many years, the standard treatment for elimination of drywood termite infestations was fumigation, a whole-structure treatment that affects termites in all wooden members, especially extensive or difficult to access infestations. The public has shown increased interest in nonchemical or "least toxic" approaches to insect control. One of the approaches currently being marketed is electrocution using a device known as the Electrogun. Scant information has been published on laboratory or field studies of the effectiveness of the Electrogun. We report here an extensive study of the efficacy of the Electrogun for the eradication or elimination of drywood termite infestations in structures.

Tests were conducted using *Incisitermes minor* in artificially infested or naturally infested boards of various dimensions used in construction. Infested boards were placed into the attic, wall voids or subarea of a symmetrical building constructed specifically for these tests. The equipment used, the Electrogun, kills drywood termites by emitting high frequency electricity (100 kHz), high voltage (90,000), but low current (<1 amp). For exposed 2X4s and smaller pieces of wood, the probe end of the device was placed against the wood surface. For larger pieces of wood and wood concealed behind drywall, a "drill-and-pin" method was used. Two separate tests were done under different regimes of placement of infested boards and application technique. A representative of Etex, Ltd., Las Vegas, made all applications; the authors made assessments of efficacy.

Mortality of drywood termites in artificially infested boards 3 days after treatment was 44% in the first test. Four weeks post-treatment, drywood termite mortality increased to 82%. In a second test, using spot-application techniques infrequently used in structures, mortality levels at 3 days increased to 93% and 98% at 4 weeks after treatment. For naturally infested boards, mortality levels 4 weeks post treatment were 89% and 95%, respectively, in the first and second tests. Eight of 9 boards had live termites after 4 weeks in the first test; 2 of the boards had 192 and 280 live termites. Five of 9 boards had live termites after 4 weeks in the second test; one board had 165 live termites. The improved performance of electrocution in the second test is likely a result of two factors. Significantly more time was spent treating boards in the second test (27.0 vs. 6.9 minutes/board) and significantly more holes for pins were drilled in the second test (13.1 vs. 6.5 holes/board). We conclude that the efficacy of this treatment appears to be technique driven. Clearly, electrocution causes mortality in termites. However, to achieve reasonable levels of mortality the operator should use the drill-and-pin technique and spend as much time as possible treating an infested area. This control method requires precise information as to the extent and location of the drywood termite infestation. Without accurately delimiting the infestation, efficacy will likely drop to unacceptable levels.